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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/554,099	10/21/2005	Kazuya Ishida	1114-218	6596

23117 7590 05/01/2008
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EXAMINER	
DOTE, JANIS L	

ART UNIT	PAPER NUMBER
1795	

MAIL DATE	DELIVERY MODE
05/01/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/554,099	ISHIDA ET AL.	
	Examiner	Art Unit	
	Janis L. Dote	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 August 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 October 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☒ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/21/05;7/20/06;8/8/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

1. The examiner acknowledges the amendments to claims 3-5, 12, 14-16, 18, and 19 filed on Oct. 21, 2005. Claims 1-20 are pending.

2. The references cited in the PCT Search Report have been considered. The references were listed on the form PTO-1449 in the Information Disclosure Statement (IDS) filed on Jul. 20, 2006.

3. The examiner has crossed-out the Japanese patents listed on the form PTO-1449 in the IDS filed on Oct. 21, 2005, because applicants did not provide copies of the listed patents at the time the IDS was filed. The listing does not comply with 37 CFR 1.98. 37 CFR 1.98(a)(2) requires a legible copy of: (1) each foreign patent; (2) each publication or that portion which caused it to be listed; (3) for each cited pending U.S. application, the application specification including claims, and any drawing of the application, or that portion of the application which caused it to be listed including any claims directed to that portion, unless the cited pending U.S. application is stored in the Image File Wrapper (IFW) system; and (4) all other information, or that portion which caused it to be listed. In addition, each IDS must include a list of all

patents, publications, applications, or other information submitted for consideration by the Office (see 37 CFR 1.98(a)(1) and (b)), and MPEP § 609.04(a), subsection I. states, "the list ... must be submitted on a separate paper." Applicants are advised that the date of submission of any item of information or any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the IDS, including all "statement" requirements of 37 CFR 1.97(e). See MPEP § 609.05(a).

The examiner crossed-out the Japanese Patent 2002-2444321 A listed on the form PTO-1449 in the IDS filed on Jul. 20, 2006, because the listing is incorrect. The reference should have been listed as "2002-244321 A." The examiner notes that the reference JP 2002-244321 A is correctly listed on the form PTO-1449 in the IDS filed on Aug. 8, 2006.

The examiner notes that applicants' statements of relevancy for the Japanese Patents 59-155851 A and 61-28557 A listed on the form PTO-1449 in the IDS filed on Jul. 20, 2006, can be found at page 7 of the instant specification.

The examiner crossed-out the listing of the International Preliminary Report on Patentability listed on the form PTO-1449 in the IDS filed on Jul. 20, 2006, because it is in the Japanese language. Applicants did not provide a statement of relevancy

of said reference. The listing fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of each patent listed that is not in the English language. It has been placed in the application file, but the information referred to therein has not been considered.

The examiner has crossed-out the indication that a translation or partial translation was provided for all the listed Japanese patents on the form PTO-1449 in the IDS filed on Jul. 20, 2006, except for JP 2002-365820 A. Applicants did not provide a translation or partial translations of the Japanese patents, but only provided an English-language abstract describing the patents. The examiner also corrected the publishing date of JP 2-170166A from "8-1990" to -- 06-1990 --.

The examiner has crossed-out all of the references listed on the form PTO-1449 in the IDS filed on Aug. 8, 2006, except for the references - JP 2002-244321 A and the English translation of the International Preliminary Report. The crossed-out references were listed on the form PTO-1449 in the IDS filed on Jul. 20, 2006, and have been considered. The examiner has also crossed-out the indication that a partial

translation was provided for JP 2002-244321 A. Applicants did not provide a partial translation of the reference, but only provided an English-language abstract describing the reference.

4. The amendment filed on Oct. 21, 2005, is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows:

In the new paragraph inserted at page 1, after the title, the phrase "[t]his application . . . claims benefit of JP 2003-120135 filed 24 April 2003, and JP 2003-151334 filed on 28 May 2003, the entire contents of each of which are hereby incorporated by reference" (emphasis added) lacks antecedent basis in the originally filed specification.

The originally filed specification, which is the PCT specification, filed on Apr. 16, 2004, does not state that the contents in the two Japanese priority documents were to be incorporated by reference in the originally filed specification. See the English-language translation of the international application filed on Oct. 21, 2005. See MPEP 608.01(p).I.B., which states "[a]n incorporation by reference statement added

after the application's filing date is not effective because no new matter can be added to an application after its filing date (see 35 U.S.C. 132(a))."

The instant application filing date is that of the PCT international application, Apr. 16, 2004, not Oct. 21, 2005, the date of entry of the PCT international application into the US national stage. See 35 U.S.C. 363 and PCT Article 11(3).

Applicants are required to cancel the new matter in the reply to this Office Action.

5. The disclosure is objected to because of the following informalities:

The use of trademarks, e.g., Amilan [sic: AMILAN] in Table 33 at page 141, has been noted in this application. The trademarks should be capitalized wherever they appear and be accompanied by the generic terminology. This example is not exhaustive. Applicants should review the entire specification for compliance.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

Appropriate correction is required.

6. The examiner has determined that the following terms recited in instant claims 18-20 are means-plus-function limitations covered by 35 U.S.C. 112, sixth paragraph, because there is no corresponding structure recited in the claim:

(1) "charging means for charging . . .";

(2) "exposure means for applying exposure . . .";

(3) "developing means for developing electrostatic latent images. . . ";

(4) "photoreceptor driving means for rotationally driving the electrophotographic photoreceptor . . . "; and

(5) "control means for controlling an operation of the photoreceptor driving means . . ." (emphasis added).

Structures of the "developing means for developing" are found in the developing unit in Fig. 7. Fig. 7 shows a developing device **33** comprising a developing roller **33a** in a casing **33b** that rotatably supports the developing roller around a rotational axis in parallel with the rotational axis of the photoreceptor. See the instant specification, paragraph bridging pages 121 and 122. Those structures define the literal scope of the term "developing means for developing" recited in instant claims 18-20

Fig. 7 shows that the charger **32** is a roller charging system. See the instant specification states at page 121, lines 15-16. The instant specification at page 128, lines 20-22, further states that "while the charger **32** [in Fig. 7] is contact type charging means, it is not restrictive and non-contact type charging means such as a corona charging system by be used." Those two disclosed structures define the literal scope of the term "charging means for charging" recited in instant claims 18-20.

The instant specification at page 121, lines 17-23, discloses that the exposure means **30** in Fig. 7 "has, for example, a semiconductor laser as a light source." That structure defines the literal scope of the term "exposure means for applying exposure" recited in instant claims 18-20.

The instant specification at page 121, lines 1-6, states that the photoreceptor driving means **37** in Fig. 7 "has, for example, a motor as the power source and rotationally drives the photoreceptor **1** at a rotational circumferential speed of Vb by transmitting power from the motor by way of gears (not shown) to a support constituting the core of the photoreceptor **1**." The motor defines the literal scope of the term "photoreceptor driving means for rotationally driving the electrophotographic photoreceptor" recited in instant claims 19 and 20.

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 6-15, 19, and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6 is indefinite in the phrase "two or more kinds of metal phthalocyanine containing oxotitanium phthalocyanine" (emphasis added) because it is not clear what is meant by the term "kinds." It is not clear whether the "kinds" refer to a species of metal phthalocyanine or to a property.

Claim 10 and claims dependent thereon are indefinite in the phrase "a photosensitive layer . . . containing . . . the enamine compound represented by the general formula (1)" (emphasis added) because claim 10 does not provide a description of the general formula (1). It is not clear what is the scope of the enamine compound recited in claim 10.

Claims 19 and 20 are indefinite in the term "control means for controlling an operation of the photoreceptor driving means

. . ." (emphasis added). It is not clear what is meant by the term "means for." The instant specification does not define the term "means for." Nor does the specification appear to provide any examples of said "means for." The instant specification does not provide an adequate written description that links or associates particular structures to the functions recited in the means-plus function limitations. See MPEP 2181.

9. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

10. Claims 19 and 20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 19 and 20 recite "[a]n electrophotographic apparatus comprising . . . control means for controlling an operation of the photoreceptor driving means . . ." (emphasis added).

The originally filed specification does not provide an adequate written description the apparatus recited in those claims. Nor does the originally filed specification provide adequate written description of the structures corresponding to the "control means for controlling an operation of the photoreceptor driving means . . ." See MPEP 2181 and cases cited therein. The originally filed specification describes an apparatus as shown in Fig. 7. According to the originally filed specification at page 120, line 21, to page 121, line 1, and the "electrophotographic apparatus **100** includes . . . control means **38** for controlling the operation of the photoreceptor driving means **37**." The specification does not define the term "control means for controlling . . ." Nor does the specification describe the structures associated with the control means **38** in Fig. 7. The originally filed specification does not provide an adequate written description that links or associates particular structures to the function recited in the "control means" limitation recited in instant claims 19 and 20.

11. Claim 10 is objected to because of the following informalities:

The term "the enamine compound" in the phrase "a photosensitive layer . . . containing . . . the enamine compound represented by the general formula (1)" (emphasis added) lacks antecedent basis in claim 10.

Appropriate correction is required.

12. In the interest of compact prosecution, the examiner has interpreted the claim language in claim 10 as referring to the enamine compound represented by formula (1) described in the instant specification at page 12, line 5, to page 13, line 17.

In spite of the failure of the instant specification to provide a structural definition of the limitation "control means for . . ." recited in instant claims 19 and 20, and solely to explore the potential meaning of the claims as against prior art, the examiner has interpreted the limitation "control means for" as encompassing any device that controls the rotation speed of the photoreceptor.

Rejections based on these interpretations are set forth infra.

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

15. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f), or (g) prior art under 35 U.S.C. 103(a).

16. Claims 10 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Japanese Patent 2003-12619 (JP'619). See the USPTO English-language translation of JP'619 for cites.

JP'619 exemplifies an electrophotographic photoconductor, also known in the electrophotographic arts as a photoreceptor, comprising an electrically conductive substrate, an intermediate layer, and a photosensitive layer that comprises a charge generation layer and a charge transport layer. Translation, paragraphs 0182-0186 and the photoconductor in Application Example 14 in paragraph 0194. The charge generation layer comprises an X-type metal-free phthalocyanine, which meets the non-metal phthalocyanine compositional limitations recited in instant claims 10 and 11. The charge transport layer comprises the enamine compound No. 4 and a polycarbonate binder resin. The enamine compound No. 4 is not within the compositional limitations of formula (1) recited in instant claim 10. The enamine compound No. 4 in application example 14 is representative of formula (1) disclosed in paragraphs 0014-0015. According to JP'619, the enamine compound represented by formula (1) can equally be represented by enamine compounds that meet the compositional limitations of formula (1) recited in instant claim 10. See the translation, formula (1) in paragraphs 0014-0015; formula (3) in paragraphs 0021-0022; and in particular, compound Nos. 98 and 99 in Table 14 at pages 28 and 29, and compound Nos. 216 and 217 in Table 31 at page 45. In compound Nos. 98, 99, 216, and 217, the Ar^4 in JP'619

formula (1) is a naphthyl group, which meets the naphthyl group in formula (1) in instant claim 10. Compounds 98 and 99 further meet the compositional limitations of formula (1) in claim 10, when the groups Ar^5 and Ar^6 are both phenyl, the group Ar^3 is a 4-methoxyphenyl, the group R^1 is a hydrogen atom, the groups Ar^1 and Ar^2 are each phenyl groups that are connected to each other via a carbon atom, i.e., "Ar^1 and Ar^2 each represent an optionally-substituted aryl group" as recited in instant claim 10, and the integer n is either 1 or 2, respectively. Compounds 216 and 217 further meet the compositional limitations of formula (1) in claim 10, when the groups Ar^5 and Ar^6 are both phenyl, the group Ar^3 is a 4-methoxyphenyl, the group R^1 is a hydrogen atom, the groups Ar^1 and Ar^2 are each phenyl groups that are connected to each other via an oxygen atom, i.e., "Ar^1 and Ar^2 each represent optionally-substituted aryl groups" as recited in instant claim 10, and the integer n is either 1 or 2, respectively. Accordingly, JP'619 teaches a photoreceptor that meets the compositional limitations recited in instant claims 10 and 11.

17. Claims 1, 16, and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by JP'619. See the USPTO English-language translation of JP'619 for cites.

JP'619 exemplifies a photoconductor, also known in the electrophotographic arts as a photoreceptor, comprising an electrically cylindrical aluminum support having a diameter of 40 mm, an intermediate layer, and a photosensitive layer that comprises a charge generation layer and a charge transport layer. Translation, photoconductor in Application Example 20 in paragraphs 0199-0201. The charge generation layer comprises an oxotitanyl phthalocyanine, which has a crystal structure showing a diffraction peak at a Bragg angle ($2\theta \pm 0.2^{\circ}$) of 27.3° in a CuKα X-ray diffraction spectrum. The oxotitanyl phthalocyanine meets the oxotitanyl phthalocyanine having a Bragg angle ($2\theta \pm 0.2^{\circ}$) of 27.2° recited in instant claim 1. The charge transport layer comprises the enamine compound No. 5 and a polycarbonate binder resin. The enamine compound No. 5 is not within the compositional limitations of formula (1) recited in instant claim 1. The enamine compound No. 5 in application example 20 is representative of formula (1) disclosed in paragraphs 0014-0015. According to JP'619, the enamine compound represented by formula (1) can equally be represented by enamine compounds that meet the compositional limitations of formula (1) recited in instant claim 1, i.e., compound Nos. 98, 99, 216, and 217. The discussion of JP'619 enamine compounds numbered 98, 99, 216, and 217 in paragraph 16 above is

incorporated herein by reference. Accordingly, JP'619 teaches a photoreceptor that meets the compositional limitations recited in the instant claims.

JP'619 further discloses an image forming apparatus comprising its inventive electrophotographic photoconductor **11**, a "charging device" **32**, which is a contact charge roller or a non-contact type charging device, a semiconductor laser **31**, as the exposure source, and a developing apparatus **33**, which comprises a developer roller in a casing. See Fig. 4 and paragraphs 0160-0162 and 0206. The charge roller and non-contact type charging device **32**, the exposure device **32**, and the developing apparatus **33** meet the "means for" limitations recited in instant claims 18. See paragraph 6 supra.

JP'619 further discloses an image forming method that meets the steps recited in instant claim 16. The JP'619 method comprises the steps of charging the surface of the photoconductor, exposing the charged photoconductor by scanning a semiconductor laser beam on the surface of the photoconductor to form an electrostatic latent image, developing the latent image with a toner, transferring the toner image from the photoconductor to a transfer paper, and fixing the toner image to the transfer paper. Translation, paragraphs 0161-0162.

18. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP'619 combined with US 6,210,847 B1 (Miyauchi'847). See the USPTO translation of JP'619 for cites.

JP'619 teaches an electrophotographic photoconductor as described in paragraph 17 above, which is incorporated by reference.

JP'619 does not exemplify a charge generation layer comprising an oxotitanium phthalocyanine having a crystal structure as recited in instant claim 3. However, JP'619 does not limit the charge generating substance in the charge generation layer. JP'619 teaches that the charge generating substance can be a phthalocyanine pigment, such as a metal phthalocyanine or a nonmetal phthalocyanine. Translation, paragraph 0137.

Miyauchi'847 discloses a crystalline oxotitanylphthalocyanine compound having a crystal structure showing main diffraction peaks at Bragg angles ($2\theta \pm 0.2^\circ$) of 7.3, 9.4, 9.6, 11.6, 13.3, 17.9, 24.1, and 27.2° in a CuKα X-ray diffraction spectrum. The peak bundle formed by overlapping the peaks at 9.4° and 9.6° is the largest peak and the peak at 27.2° is the second largest peak. See col. 4, lines 41-59; production example 1 at cols. 86-87; and Figs. 5 and 6. The Miyauchi'847 oxotitanylphthalocyanine meets the oxotitanium phthalocyanine

recited in instant claim 3. According to Miyauchi'847, when its oxotitanylphthalocyanine is used as the charge generating substance in electrophotographic photoreceptors (also known in the art as photoconductors), the photoreceptors have excellent photosensitivity characteristics to light in the long wavelength region, characteristics on repeated use, and stability. Col. 4, lines 33-38, and col. 20, lines 47-61.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings in JP'619 and Miyauchi'847, to use the crystalline oxotitanylphthalocyanine taught by Miyauchi'847 as the charge generating substance in the photoconductor disclosed by JP'619. That person would have had a reasonable expectation of successfully obtaining an electrophotographic photoconductor that has excellent photosensitivity characteristics to light in the long wavelength region, characteristics on repeated use, and stability, as taught by Miyauchi'847.

19. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP'619 combined with US 4,898,799 (Fujimaki). See the USPTO translation of JP'619 for cites.

JP'619 teaches an electrophotographic photoconductor as described in paragraph 17 above, which is incorporated by reference.

JP'619 does not exemplify a charge generation layer comprising an oxotitanium phthalocyanine having a crystal structure as recited in instant claim 4. However, JP'619 does not limit the charge generating substance in the charge generation layer. JP'619 teaches that the charge generating substance can be a phthalocyanine pigment, such as a metal phthalocyanine or a nonmetal phthalocyanine. Translation, paragraph 0137.

Fujimaki discloses a titanyl phthalocyanine compound having a crystal structure showing main diffraction peaks at Bragg angles ($2\theta \pm 0.2^{\circ}$) of 9.5, 9.7, 11.7, 15.0, 23.5, 24.1, and 27.3° in a CuKα X-ray diffraction spectrum. See col. 3, lines 31-38 and 43-64; synthesis example 1 at col. 61; example 1 at col. 62; and Fig. 1. The Fujimaki titanyl phthalocyanine meets the oxotitanium phthalocyanine recited in instant claim 4. According to Fujimaki, when its titanyl phthalocyanine is used as the charge generating substance in electrophotographic photoreceptors (also known in the art as photoconductors), the photoreceptors have "high sensitivity especially to light of wavelength more than 600 nm," "high electrical potential

stability when used repeatedly," and "high electrification power." Col. 2, line 46, to col. 3, line 3.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings in JP'619 and Fujimaki, to use the titanyl phthalocyanine taught by Fujimaki as the charge generating substance in the photoconductor disclosed by JP'619. That person would have had a reasonable expectation of successfully obtaining an electrophotographic photoconductor that has high sensitivity especially to light of wavelength more than 600 nm, "high electrical potential stability when used repeatedly," and high electrification power, as taught by Fujimaki.

20. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP'619 combined with US 6,270,936 B1 (Tanaka). See the USPTO translation of JP'619 for cites.

JP'619 teaches an electrophotographic photoconductor as described in paragraph 17 above, which is incorporated by reference.

JP'619 does not exemplify a charge generation layer comprising an oxotitanium phthalocyanine having a crystal structure as recited in instant claim 5. However, JP'619 does not limit the charge generating substance in the charge

generation layer. JP'619 teaches that the charge generating substance can be a phthalocyanine pigment, such as a metal phthalocyanine or a nonmetal phthalocyanine. JP'619 further teaches that the charge generation substance can be one or a combination of at least two of charge generation substances. Translation, paragraph 0137.

Tanaka discloses a charge generation material comprising an oxytitanium phthalocyanine and a hydroxygallium phthalocyanine compound, each phthalocyanine exhibiting a particular X-ray diffraction pattern. See production examples 1 and 2 and example 1 at col. 8, lines 30-42. The oxytitanium phthalocyanine has a crystal structure showing main diffraction peaks at Bragg angles ($2\theta \pm 0.2^{\circ}$) of 9.0, 14.2, 23.9, and 27.1° in a CuKα X-ray diffraction spectrum. See production example 1 and Fig. 1. The Tanaka oxotitanyl phthalocyanine meets the oxotitanium phthalocyanine recited in instant claim 5. According to Tanaka, when its charge generation material is used as the charge generating material in the photosensitive layers in electrophotographic photosensitive members (also known in the art as photoconductors or photoreceptors), the photosensitive members have "low residual potential," are "free of any faulty charging," and show "a small photomemory." The members also provide high image quality and have high sensitivity

characteristics and "stable potential characteristics when used repeatedly." Col. 2, lines 16-21 and 26-34; col. 8, line 61, to col. 9, line 15; and col. 12, lines 1-4.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings in JP'619 and Tanaka, to use the combination of the oxytitanium phthalocyanine and the hydroxygallium phthalocyanine taught by Tanaka as the charge generating substance in the photoconductor disclosed by JP'619. That person would have had a reasonable expectation of successfully obtaining an electrophotographic photoconductor that has the benefits taught by Tanaka.

21. Claims 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP'619 combined with US 5,292,604 (Nukada). See the USPTO translation of JP'619 for cites.

JP'619 teaches an electrophotographic photoconductor as described in paragraph 16 above, which is incorporated by reference.

JP'619 does not exemplify a charge generation layer comprising a mixture of an oxotitanium phthalocyanine and a metal phthalocyanine as recited in instant claims 6-9. However, JP'619 does not limit the charge generating substance in the charge generation layer. JP'619 teaches that the charge

generating substance can be a phthalocyanine pigment, such as a metal phthalocyanine or a nonmetal phthalocyanine. JP'619 further teaches that the charge generation substance can be a combination of at least two charge generation substances. Translation, paragraph 0137.

Nukada teaches a phthalocyanine mixed crystal comprising oxytitanium phthalocyanine and chlorogallium phthalocyanine, which meets the phthalocyanine combination recited in instant claims 6-8. Nukada also teaches a mixed crystal comprising oxytitanium phthalocyanine and chloroindium phthalocyanine, which meets the phthalocyanine combination recited in instant claims 6, 7, and 9. See, for example, example 3 at col. 8, lines 5-14, and example 19 at col. 8, line 65, to col. 9, line 7, respectively. According to Nukada, the above mixed crystals serve as excellent charge generating material. Col. 13, lines 48-53. When the above mixed crystals are used as the charge generation material in electrophotographic photoreceptors (also known in the art as photoconductors), the photoreceptors have excellent stability on repeated use and excellent environmental stability. The photoreceptors also have high sensitivity. Col. 2, lines 5-13; col. 13, lines 54-56; and Table 5 at col. 13, examples 34 and 42, which exemplify

photoreceptors comprising the mixed crystals in examples 3 and 19, respectively.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings in JP'619 and Nukada, to use either the mixed crystal comprising oxytitanium phthalocyanine and chlorogallium phthalocyanine or the one comprising oxytitanium phthalocyanine and chloroindium phthalocyanine, as taught by Nukada, as the charge generation substance in the photoconductor taught by JP'619. That person would have had a reasonable expectation of successfully obtaining an electrophotographic photoconductor that has excellent stability on repeated use and environmental stability, and that has high sensitivity, as taught by Nukada.

22. Claims 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP'619 combined with US 6,489,072 B2 (Sasaki). See the USPTO translation of JP'619 for cites.

JP'619 teaches an electrophotographic photoconductor as described in paragraph 16 above, which is incorporated by reference.

JP'619 does not exemplify a charge generation layer comprising a non-metal phthalocyanine and a metal phthalocyanine as recited in instant claims 12-14. However, JP'619 does not

limit the charge generating substance in the charge generation layer. JP'619 teaches that the charge generating substance can be a phthalocyanine pigment, such as a metal phthalocyanine or a nonmetal phthalocyanine. JP'619 further teaches that the charge generation substance can be a combination of at least two charge generation substances. Translation, paragraph 0137.

Sasaki teaches a charge generation material comprising the combination of an X-type metal-free phthalocyanine and a titanyloxophthalocyanine. See example 21 at col. 19, lines 28-43, and example 25 at col. 21, lines 48-57. The Sasaki charge generation material meets the phthalocyanines recited in instant claims 12-14. According to Sasaki, when a photoconductor comprises the above combination of phthalocyanines as the charge generation material, the photoconductor has excellent photoconductive characteristics, in particular excellent potential retention rates. Col. 1, lines 11-16; col. 2, lines 60-65; example 21 in Table 9 at col. 20; and example 25 in Table 11 at col. 22.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings in JP'619 and Sasaki, to use the Sasaki combination of an X-type metal-free phthalocyanine and a titanyloxophthalocyanine as the charge generation substance in the photoconductor taught by JP'619.

That person would have had a reasonable expectation of successfully obtaining an electrophotographic photoconductor that has excellent photoconductive characteristics, in particular excellent potential retention rates, as taught by Sasaki.

23. Claims 17, 19, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP'619 combined with US 5,250,990 (Fujimura), Japanese Patent 08-185089 (JP'089), US 4,522,483 (Matsumoto), and US 6,178,303 B1 (Ishii). See the USPTO translation of JP'619 for cites. Also see the Japanese Patent Office (JPO) machine-assisted translation of JP'089 and the JPO English-language abstract describing JP'089 for cites.

JP'619 discloses an image forming method and an image forming apparatus as described in paragraph 17 above, which is incorporated herein by reference.

As discussed in paragraph 17 above, JP'610 teaches that its image forming apparatus comprises the "charging device" **32**, which is a contact charge roller or a non-contact type charging device. The JP'610 photoconductor has a cylindrical shape, i.e., in the form of a photoconductive drum.

According to JP'619, its photoconductor has "excellent response" and high sensitivity and durability. Paragraphs 0016

and 0209-0211, "The sensitivity does not change even when used in . . . high-speed processes." Paragraph 0146.

JP'619 does not disclose that in its image forming method the time between the start of exposing the surface of the charged photoconductor and the completion of developing the electrostatic latent image on the photoconductor is "90 msec or less" as recited in instant claim 17. Nor does JP'619 disclose that its image forming apparatus comprises a "driving means for rotationally driving" the photoconductor at a rotational circumferential speed of Vb and a "control means for controlling an operation" of the driving means "such that a value d(=L/Vp) obtained by dividing distance L along the outer circumferential surface of the . . . photoreceptor [also known in the electrophotographic arts as a photoconductor] from an exposure position by the exposure means to a developing position by the developing means by the rotational circumferential speed Vp is 90 msec or less" as recited in instant claim 19.

According to Fujimura, "in recent years, with the process of miniaturization of electrophotographic apparatus, it has been desired to develop a space-saving type electrophotographic apparatus which is inexpensive and transportable, directed to individual use . . . an apparatus using a drum with a small

diameter and a blade cleaning system, is most suitable. Fujimura, col. 1, lines 59-66.

JP'089 teaches an electrophotographic image forming apparatus that is capable of setting the time it takes the photoconductive drum to rotate from the center of the charging device to the center of developing device to be $\leq$ 0.3 sec. JP'089 teaches that said time is determined by the formula $t = D(\theta/2v)$, where t is the travel time of a point on the surface of the photoconductive drum from the (the direction of) center of the charging device to the (the direction of) center of the developing device, D is the outer diameter (mm) of the photoconductive drum, θ is the angle (in radians) formed between the position of charging device center and the position of the developing device center on the photoconductive drum surface with respect to center thereof as the angle center, and v is the circumferential speed (mm/sec) of the photoconductor drum. See the JPO English-language abstract of JP'089; and the JPO translation, paragraph 0006 and Drawing 3.

The JP'089 image forming apparatus comprises the photoconductive drum **1**, a corona charging device as the electrification device **2**, an optical system **3** for image exposure, a developing device **4**, which comprises a developing roller housed in a casing, and a cleaning device **6**, which

comprises a cleaning blade. See Drawing 3 and the JPO translation, paragraphs 0011-0013. The corona charging device **2** and the developing device **4** meet the "means for" limitations recited in instant claims 19. See paragraph 6 supra. JP'089 does not identify the light source of the optical system **3.** However, as discussed in paragraph 17 above, JP'619 teaches that the image exposure device can comprise a semiconductor laser as the light source, which meets the "means for" limitation recited in instant claim 19. JP'089 exemplifies a photoconductive drum having an outer diameter of 30 mm, where θ is 1.57 radians. The photoconductive drum comprises an aluminum cylinder, a charge generation layer, and a charge transport layer. JPO translation, paragraphs 0036 and 0037, and example 6 in paragraph 0041 and in Table 3 in paragraph 0042. The outer diameter of 30 mm is within the photoreceptor diameter range of "24 mm or more and 40 mm or less" recited in instant claim 20.

According to JP'089, by setting the time "t" to be within 0.3 sec, the image forming apparatus and image forming method stably provide images with good image density even during continuous image formation. JP'089 further teaches that its apparatus has the advantageous in respect of miniaturization and speed improvement. JPO translation, paragraphs 0005 and 0043; and JPO abstract.

In view of the teachings in JP'089, when the circumferential speed "v" of the photoconductive drum in the JP'089 example 6 is adjusted to be higher speed of about 262 mm/sec, the time "t" it takes the photoconductive drum to rotate from the direction of the center of the charging device to the direction of the center of developing device is 0.090 sec, i.e., 90 msec (i.e., (30 mm x 1.57 radian)/(2 x 262 mm/sec)). The 0.090 sec time "t" is within 0.3 sec as taught by JP'089. In the JP'089 apparatus, the image exposure device **3** is located between the charging device **2** and the developing device **4**. Because the time "t" is 0.090 sec, it is reasonable to conclude that the time between the start of exposing the photoconductive drum and the completion of developing the latent image is less than 0.090 sec, which is within the time "90 msec or less" recited in instant claims 17 and 19.

JP'089 does not disclose that its image forming apparatus comprises a "driving means" and "control means" as recited in instant claim 19 to control the circumferential speed of the photoconductive drum. However, it is well known in the electrophotographic arts that in electrophotographic image forming apparatuses a driving device rotates the cylindrical photoconductor and a control device is used to control the

driving device to rotate the photoconductive drum at a particular speed. See Matsumoto, Figs. 1 and 2, and col. 2, line 54, to col. 3, line 2. Matsumoto describes a control section **29** shown in Fig. 2 that comprises a main processor **31** that is connected to a sub-processor **33**, which is connected to the input terminal of driver **33a**. Driver **33a** is connected to stepping motor **51** for rotating the photoconductive drum **9** in Fig. 1. Ishii at col. 3, line 66, to col. 4, line 4, describes a controller that includes motors for rotating the photoreceptor drum, the developer roller and other rotary members "at different constant speeds, motor drivers, driving force transmitting mechanisms, speed sensors, speed controllers, and power sources."

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of JP'619 and JP'089, to use the JP'619 semiconductor laser as the light source and the photosensitive layer taught by JP'619, which comprises a charge generation layer and a charge transport layer, as the photosensitive layer on the photoconductive drum in the image forming apparatus in example 6 of JP'089, where the outer diameter of the drum is 30 mm. It would have also been obvious for that person, in view of the teachings in JP'089, adjust, through routine experimentation, the circumferential speed of

the photoconductive drum in the resultant image forming apparatus, such that the circumferential speed is about 262 mm/sec and the travel time "t" is 0.090 sec. It would have further been obvious to that person, in view of the teachings in Matsumoto and Ishii, to incorporate a driving motor to rotate the photoconductive drum and a processing unit to control the driving motor such that photoconductive drum has the above circumferential speed of about 262 mm/sec. That person would have had a reasonable expectation of successfully practicing a high speed image forming method and obtaining a miniaturized and high-speed processing electrophotographic image forming apparatus that have excellent response and durability and high sensitivity that does not change in high-speed processes as taught by JP'819, and that stably provide toner images with good image density even during continuous image formation as taught by JP'089.

24. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re*

Goodman, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

25. Claims 1-3 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-14 of US Patent No. 7,175,956 (Obata'956) in view of Miyauchi'847

Reference claim 3, which depends on reference claim 2, recites an electrophotographic photoreceptor of claim 3 comprising a conductive substrate and a photosensitive layer that comprises a charge generating substance and a charge transporting substance comprising an enamine compound of formula (2), which meets the compositional limitations of the enamine formulas (1) and (2) recited in instant claims 1 and 2, respectively. Reference claim 4, which depends from reference claim 3, requires that the charge generation substance be an oxotitanium phthalocyanine compound. Reference claim 5, which

depends from reference claim 3, requires that the photosensitive layer comprise a charge generation layer comprising the charge generation substance and a charge transport layer comprising the enamine compound.

The claims in Obata'956 do not recite that the oxotitanium phthalocyanine has a crystal structure as recited in instant claims 1 and 3.

However, the use of the oxotitanium phthalocyanine recited in the instant claims as a charge generation substance in electrophotographic photoreceptors is well known in the art. Miyauchi'847 teaches a charge generation material comprising a crystalline oxotitanylphthalocyanine having a crystal structure as recited in instant claims 1 and 3. The discussion of Miyauchi'847 in paragraph 18 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter claimed in Obata'956 and the teachings in Miyauchi'847, to use the crystalline oxotitanylphthalocyanine taught by Miyauchi'847 as the charge generation substance in the photoreceptor recited in the claims in Obata'956. That person would have had a reasonable expectation of successfully obtaining an electrophotographic photoreceptor that has excellent

photosensitivity characteristics to light in the long wavelength region, characteristics on repeated use, and stability, as taught by Miyauchi'847.

26. Claims 1, 2, and 4 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-14 of Obata'956 in view of Fujimaki.

Reference claims 3-5 recite an electrophotographic photoreceptor as described in paragraph 25 above, which is incorporated herein by reference.

The claims in Obata'956 do not recite that the oxotitanium phthalocyanine has the crystal structure recited in instant claims 1 and 4.

However, the use of the oxotitanium phthalocyanine recited in the instant claims as a charge generation material in electrophotographic photoreceptors is well known in the art. Fujimaki teaches a charge generation material comprising a titanyl phthalocyanine having a crystal structure as recited in instant claims 1 and 4. The discussion of Fujimaki in paragraph 19 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter claimed in Obata'956 and the teachings in Fujimaki, to use the titanyl

phthalocyanine taught by Fujimaki as the charge generation substance in the photoreceptor recited in the claims in Obata'956. That person would have had a reasonable expectation of successfully obtaining an electrophotographic photoreceptor that has high sensitivity especially to light of wavelength more than 600 nm, "high electrical potential stability when used repeatedly," and high electrification power, as taught by Fujimaki.

27. Claims 1, 2, and 5 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-14 of Obata'956 in view of Tanaka.

Reference claims 3-5 recite an electrophotographic photoreceptor as described in paragraph 25 above, which is incorporated herein by reference.

The claims in Obata'956 do not recite that the oxotitanium phthalocyanine has the crystal structure recited in instant claims 1 and 5.

However, the use of the oxotitanium phthalocyanine recited in the instant claims as a charge generation material in electrophotographic photoreceptors is well known in the art. Tanaka teaches a charge generation material comprising an oxytitanium phthalocyanine and a hydroxygallium phthalocyanine.

The Tanaka oxytitanium has a crystal structure as recited in instant claims 1 and 5. The discussion of Tanaka in paragraph 20 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter claimed in Obata'956 and the teachings in Tanaka, to use the combination of the oxytitanium phthalocyanine and the hydroxygallium phthalocyanine taught by Tanaka as the charge generation substance in the photoreceptor recited in the claims in Obata'956. That person would have had a reasonable expectation of successfully obtaining an electrophotographic photoreceptor that has the benefits taught by Tanaka.

28. Claims 6-9 and 15 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-14 of Obata'956 in view of Nukada.

Reference claims 3 and 5 recite an electrophotographic photoreceptor as described in paragraph 25 above, which is incorporated herein by reference.

The claims in Obata'956 do not recite that the charge generation substance comprises an oxotitanium phthalocyanine and another metal phthalocyanine as recited in instant claims 6-9.

However, the use of the combinations of phthalocyanines recited in the instant claims as charge generation materials in electrophotographic photoreceptors is well known in the art. Nukada teaches a charge generation material comprising a mixed crystal comprising oxytitanium phthalocyanine and chlorogallium phthalocyanine, which meets the phthalocyanine combination recited in instant claims 6-8. Nukada also teaches a charge generation material comprising a mixed crystal comprising oxytitanium phthalocyanine and chloroindium phthalocyanine, which meets the phthalocyanine combination recited in instant claims 6, 7, and 9. The discussion of Nukada in paragraph 21 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter claimed in Obata'956 and the teachings in Nukada, to use either the Nukada mixed crystal comprising oxytitanium phthalocyanine and chlorogallium phthalocyanine or the one comprising oxytitanium phthalocyanine and chloroindium phthalocyanine as the charge generation substance in the photoreceptor recited in the claims in Obata'956. That person would have had a reasonable expectation of successfully obtaining an electrophotographic photoreceptor that has excellent stability on repeated use and

environmental stability, and that has high sensitivity, as taught by Nukada.

29. Claims 10-14 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-14 of Obata'956 in view of Sasaki.

Reference claims 3 and 5 recite an electrophotographic photoreceptor as described in paragraph 25 above, which is incorporated herein by reference.

The claims in Obata'956 do not recite that the charge generation substance comprises a non-metal phthalocyanine or the combination of a non-metal phthalocyanine and metal phthalocyanine, as recited in instant claims 10 and 11 and claims 12-14, respectively.

However, the use of the non-metal phthalocyanine and the combination of phthalocyanines recited in the instant claims as the charge generation materials in electrophotographic photoreceptors is well known in the art. Sasaki teaches a charge generation material comprising the combination of an X-type metal-free phthalocyanine and a titanyloxophthalocyanine. The discussion of Sasaki in paragraph 22 above is incorporated herein by reference. The X-type metal-free phthalocyanine meets the non-metal phthalocyanine recited in instant claims 10

and 11. The Sasaki combination of phthalocyanines meets the combination of non-metal phthalocyanine and metal phthalocyanine recited in instant claims 12-14.

It would have been obvious for a person having ordinary skill in the art, in view of subject matter claimed in Obata'956 and the teachings in Sasaki, to use the Sasaki combination of an X-type metal-free phthalocyanine and a titanyloxophthalocyanine as the charge generation substance in the photoreceptor recited in the claims in Obata'956. That person would have had a reasonable expectation of successfully obtaining an electrophotographic photoreceptor that has excellent photoconductive characteristics, in particular excellent potential retention rates, as taught by Sasaki.

30. The following rejections are provisional obviousness-type double patenting rejections because the conflicting claims have not in fact been patented.

31. Claims 1-3, 16, and 18 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-5 of copending US application No. 10/993,770 (Application'770), as evidenced by that portion of the disclosure in Application'770 that supports the subject

matter recited in the claims of Application'770, in view of Ishii and Miyauchi'847.

According to USPTO records, a Notice of allowability was mailed in Application'770 on Apr. 21, 2008.

Reference claim 5, which depends on reference claim 1, recites an image forming apparatus comprising the electrophotographic photoreceptor of claim 1, a charging means, an exposure means, a developing means, a transfer means, and a cleaning means. The photoreceptor comprises a conductive substrate and a photosensitive layer that comprises an enamine compound of formula (1), which meets the compositional limitations of the enamine formula (1) recited in instant claim 1. Reference claim 2, which depends from reference claim 1, requires that the enamine compound be represented by formula (2), which meets the compositional limitations of the enamine formula (2) recited in instant claim 2. Reference claim 4, which depends from reference claim 1, requires that the photosensitive layer comprise a charge generation layer comprising a charge generation substance and a charge transport layer comprising the enamine compound as the charge transportation substance.

That portion of Application'770 that supports the image forming apparatus recited in reference claim 5 describes the

image forming apparatus shown in Fig. 4 of Application'770. Application'770 discloses that the image forming apparatus comprises a corona charger **36** as the charging means, a laser printer **30** as the exposure means that comprises a semiconductor laser **31**, and a developing device **37** as a developing means that supplies toner to the electrostatic latent image to form a toner image. See Application'770, page 105, lines 2-23, and the paragraph bridging pages 106 and 107. When addressing the issue of whether a claim in an application defines an obvious variation of an invention claimed in a patent, "those portions of the specification which support the patent claims may be also be examined and considered." See MPEP 804,II.B.1, p. 800-22, citing In re Vogel, 164 USPA 619, 622 (CCPA 1970). The corona charger **36** and the semiconductor laser **30** meet the "means for" limitations recited in instant claims 18. See paragraph 6 supra.

Application'770 does not define the structures associated with the developing means recited in reference claim 5. Nor do the claims in Application'770 recite that the charge generation substance comprises the oxotitanium phthalocyanine having a crystal structure as recited in instant claims 1 and 3.

However, the use of a developing device comprising a developing roller in a casing is well known in the art. See

Ishii, col. 1, lines 16-23, and Fig. 1, which shows a developing unit comprising a housing containing the developing roller **2**. In addition, the use of the oxotitanium phthalocyanine recited in the instant claims as a charge generation material in electrophotographic photoreceptors is well known in the art. Miyauchi'847 teaches a charge generation material comprising a crystalline oxotitanylphthalocyanine having a crystal structure as recited in instant claims 1 and 3. The discussion of Miyauchi'847 in paragraph 18 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter claimed in Application'770 and the teachings in Ishii, to use a developing device comprising a developing roller in a casing as the developing means in the image forming apparatus recited in the claims of Application'770. It would have also been obvious to that person, in view of the teachings in Miyauchi'847, to use the crystalline oxotitanylphthalocyanine taught by Miyauchi'847 as the charge generation substance in the photoreceptor recited in the claims in Application'770. It would have further been obvious for that person to use the resultant image forming apparatus rendered obvious over the subject matter claimed in Application'770 in view of the teachings in Ishii and

Miyauchi'847 in an image forming method to form toner images. That person would have had a reasonable expectation of successfully obtaining an image forming apparatus, an electrophotographic photoreceptor, and an image forming method that have excellent photosensitivity characteristics to light in the long wavelength region, characteristics on repeated use, and stability, as taught by Miyauchi'847.

32. Claims 1, 2, 4, 16, and 18 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-5 of Application'770, as evidenced by that portion of the disclosure in Application'770 that supports the subject matter recited in the claims of Application'770, in view of Ishii and Fujimaki.

The subject matter recited in reference claims 1, 2, 4, and 5 in view of Ishii renders obvious an image forming apparatus comprising an electrophotographic photoreceptor as described in paragraph 31 above, which is incorporated herein by reference.

The claims in Application'770 do not recite that the charge generation substance comprises an oxotitanium phthalocyanine having the crystal structure recited in instant claims 1 and 4.

However, the use of the oxotitanium phthalocyanine recited in the instant claims as a charge generation material in electrophotographic photoreceptors is well known in the art. Fujimaki teaches a charge generation material comprising a titanyl phthalocyanine having a crystal structure as recited in instant claims 1 and 4. The discussion of Fujimaki in paragraph 19 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter claimed in Application'770 and the teachings in Fujimaki, to use the titanyl phthalocyanine taught by Fujimaki as the charge generation substance in the photoreceptor recited in the claims in Application'770. It would have also been obvious for that person to use the resultant image forming apparatus rendered obvious over the subject matter claimed in Application'770 in view of the teachings in Ishii and Fujimaki in an image forming method to form toner images. That person would have had a reasonable expectation of successfully obtaining an image forming apparatus, an electrophotographic photoreceptor, and an image forming method that have high sensitivity especially to light of wavelength more than 600 nm, "high electrical potential stability when used repeatedly," and high electrification power, as taught by Fujimaki.

33. Claims 1, 2, 5, 16, and 18 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-5 of Application'770, as evidenced by that portion of the disclosure in Application'770 that supports the subject matter recited in the claims of Application'770, in view of Ishii and Tanaka.

The subject matter recited in reference claims 1, 2, 4, and 5 in view of Ishii renders obvious an image forming apparatus comprising an electrophotographic photoreceptor as described in paragraph 31 above, which is incorporated herein by reference.

The claims in Application'770 do not recite that the charge generation substance comprises an oxotitanium phthalocyanine having the crystal structure recited in instant claims 1 and 5.

However, the use of the oxotitanium phthalocyanine recited in the instant claims as a charge generation material in electrophotographic photoreceptors is well known in the art. Tanaka teaches a charge generation material comprising an oxytitanium phthalocyanine and a hydroxygallium phthalocyanine. The Tanaka oxytitanium has a crystal structure as recited in instant claims 1 and 5. The discussion of Tanaka in paragraph 20 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter claimed in Application'770 and the teachings in Tanaka, to use the combination of the oxytitanium phthalocyanine and the hydroxygallium phthalocyanine taught by Tanaka as the charge generation substance in the photoreceptor recited in the claims in Application'770. It would have also been obvious for that person to use the resultant image forming apparatus rendered obvious over the subject matter claimed in Application'770 in view of the teachings in Ishii and Tanaka in an image forming method to form toner images. That person would have had a reasonable expectation of successfully obtaining an image forming apparatus, an electrophotographic photoreceptor, and an image forming method that have the benefits taught by Tanaka.

34. Claims 6-9 and 15 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-5 of Application'770 in view of Nukada.

Reference claims 1, 2, and 4 recite an electrophotographic photoreceptor as described in paragraph 31 above, which is incorporated herein by reference.

The claims in Application'770 do not recite that the charge generation substance comprises an oxotitanium phthalocyanine and another metal phthalocyanine as recited in instant claims 6-9.

However, the use of the combinations of phthalocyanines recited in the instant claims as charge generation materials in electrophotographic photoconductors is well known in the art. Nukada teaches a charge generation material comprising a mixed crystal comprising oxytitanium phthalocyanine and chlorogallium phthalocyanine, which meets the phthalocyanine combination recited in instant claims 6-8. Nukada also teaches a charge generation material comprising a mixed crystal comprising oxytitanium phthalocyanine and chloroindium phthalocyanine, which meets the phthalocyanine combination recited in instant claims 6, 7, and 9. The discussion of Nukada in paragraph 21 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter claimed in Application'770 and the teachings in Nukada, to use either the Nukada mixed crystal comprising oxytitanium phthalocyanine and chlorogallium phthalocyanine or the one comprising oxytitanium phthalocyanine and chloroindium phthalocyanine as the charge generation substance in the photoreceptor recited in the claims in Application'770. That person would have had a reasonable

expectation of successfully obtaining an electrophotographic photoreceptor that has excellent stability on repeated use and environmental stability, and that has high sensitivity, as taught by Nukada.

35. Claims 10-14 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-5 of Application'770 in view of Sasaki.

Reference claims 1, 2, and 4 recite an electrophotographic photoreceptor as described in paragraph 31 above, which is incorporated herein by reference.

The claims in Application'770 do not recite that the charge generation substance comprises a non-metal phthalocyanine or the combination of a non-metal phthalocyanine and a metal phthalocyanine as recited in instant claims 10 and 11 and claims 12-14, respectively.

However, the use of the non-metal phthalocyanine and the combination of phthalocyanines recited in the instant claims as the charge generation materials in electrophotographic photoreceptors is well known in the art. Sasaki teaches a charge generation material comprising the combination of an X-type metal-free phthalocyanine and a titanyloxophthalocyanine.

The discussion of Sasaki in paragraph 22 above is incorporated herein by reference. The X-type metal-free phthalocyanine meets the non-metal phthalocyanine recited in instant claims 10 and 11. The Sasaki combination of phthalocyanines meets the combination of non-metal phthalocyanine and metal phthalocyanine recited in instant claims 12-14.

It would have been obvious for a person having ordinary skill in the art, in view of subject matter claimed in Application'770 and the teachings in Sasaki, to use the Sasaki combination of an X-type metal-free phthalocyanine and a titanyloxophthalocyanine as the charge generation substance in the photoreceptor recited in the claims in Application'770. That person would have had a reasonable expectation of successfully obtaining an electrophotographic photoreceptor that has excellent photoconductive characteristics, in particular excellent potential retention rates, as taught by Sasaki.

36. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janis L. Dote whose telephone number is (571) 272-1382. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Mark Huff, can be reached on (571) 272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry regarding papers not received regarding this communication or earlier communications should be directed to

Supervisory Application Examiner Ms. Sandra Sewell, whose telephone number is (571) 272-1047.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Janis L. Dote/
Primary Examiner, Art Unit 1795

JLD
Apr. 29, 2008